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Description

Drinking cup including a food storage element

SUMMARY OF INVENTION

[0001] The invention aims to provide an new and useful drinking cup, and in particular one which may be used to store both a drink and food.

[0002] In general terms, the invention proposes that a drinking cup device, having a base and a wall upstanding from the base to define a drink chamber for holding liquid, should include a food storage element defining a chamber for storing food. The food storage element and rest of the cup device are relatively movable, between a first configuration in which the food is accessible and a second configuration in which the food storage element is stowed on the side of the cup device (i.e. spaced from the drink chamber in a direction which is normal to the vertical axis of the cup when the cup is upright and resting on the base).

[0003] The invention makes it possible for a user (typically a small child) to store small items of food, such as raisins, in the food compartment, and to access drinks stored in the drink chamber.

[0004] Specifically, an expression of the invention is a cup device, the cup device comprising:

[0005] a cup member having a base, and at least one side wall defining a drink chamber for holding liquid, the drink chamber communicating with a drinking aperture, the side wall being shaped to define a food storage region to the side of the drink chamber and over the base;

[0006] a food storage element defining a compartment for holding food material in the food storage region; and

[0007] a detent for retaining the food storage element in the food storage region.

[0008] Certain portions of the outer surface of wall (other than the part of the wall containing the food storage region) may be considered as defining a convex surface around at least part of the vertical axis of the cup. Some, or more preferably all, of the surface may be curved. For example, at least part of the outer surface of the side wall of the cup member may lie on a cylinder, with an axis upstanding from the base. Preferably, when the food storage ele-

ment is in the food storage region little or none of the food storage element projects outwardly beyond the convex surface (e.g. no more than 5% or 10% by volume is outside the convex surface). This makes it less likely for shocks to the cup device to dislodge the food storage element from the inserted position. Optionally, when the food storage element is in the food storage region, at least a portion of the outer surface of the food storage element may actually lie on the convex surface (and parallel to it).

[0009] The angle around the vertical axis of the cup which is subtended by the food storage region may have any value in different embodiments, and may for example be 180^{o} (or higher). For example, in the case that it is 180^{o}, then the food storage element and drink chamber may be constitute equal halves of a cylinder.

[0010] However, more typically, the angle subtended by the food storage region is less than 180^{o}, such as about 90^{o}. In this case, the food storage region is more naturally considered as an outwardly directed cavity defined by the side wall, the base and, usually, a lid. The detent is for holding the food storage element in the cavity.

[0011] A first possibility is for the food storage element to be

adapted for insertion into the cavity to a variable degree.

[0012] The insertion of the food storage element into the cavity may be by a rotational motion, in which an axis of the food storage element rotates relative to the cup member. For example, the rotational motion may be a pivotal motion about a pivot line.

[0013] A second possibility is for the food storage element to be rotatable within the cavity, between an access position in which the food is accessible and one in which it is not.

[0014] In either case, the food storage element may be separable from the cup member. In this case, the food in the food storage element is accessible when the food storage element is separated from the cup. This may be advantageous, for example, to permit the food compartment to be cleaned. In this case, optionally the cup member and food storage elements can be configured to be capable of supporting the food storage element in an intermediate position in which it is inserted into the cavity by an amount less than in the insertion position. A second detent may be provided to hold the food storage element in the intermediate position. When the food storage element is in the intermediate position and the second detent means is released, the food storage element is removable

from the cup member.

[0015] Alternatively, the food storage element may be permanently attached to the cup member. For example, in the case of a food storage element which is insertable into a cavity, the food storage element and cup member may be shaped such that, although the food storage element is movable between the inserted position and an access position in which it is inserted into the cavity to a lesser degree, the food storage element cannot (at least easily) be completely removed from the cavity. In this case, the food in the interior of the food compartment should accessible when the food storage element is in the access position.

[0016] The drinking aperture may take any form within the scope of the invention. It may for example be a spout (a term used here to refer to the drinking aperture of a cup used by a very small child), or a training rim (the drinking aperture conventionally used by a slightly older child). In the latter case, the training rim may include a flow control means. For example, the training rim may contain a plurality of through holes and a lid of the cup member including the training rim may be rotatable to open a different number of the holes according to the rotational position.

[0017] Additionally, a straw can be provided extending from the drinking aperture into the drink chamber.

[0018] The cup member may have a mechanism for inhibiting drink within the drink chamber from leaving the chamber undesirably (e.g. when the cup is upset), for example a valve.

[0019] Another mechanism for inhibiting undesirable exit of fluid would be for the cup device to be constructed such that, when liquid is present in the drink chamber, the centre of mass of the cup device (including the liquid) is on a side of the vertical axis of the cup such that if the cup is tipped over in that direction the liquid does not exit the drink chamber. This feature is straightforward to produce when the food storage element is not present or is empty, and to a lesser extent applicable also even when the food storage element contains food. This measure is particularly effective in the case that the profile of the cup around its axis is largely or completely curved, so that it is able to roll easily.

Brief Description of Drawings

[0020] Preferred features of the invention will now be described, for the sake of illustration only, with reference to the following figures in which:

[0021] Fig. 1, which is composed of Figs. 1(a) and 1(b), is two views of a cup device which is a first embodiment of the invention in two different respective configurations;

[0022] Fig. 2, which is composed of Figs. 2(a) and 2(b), is two views of a cup device which is a second embodiment of the invention in different respective configurations;

[0023] Fig. 3, which is composed of Figs. 3(a) and 3(b), is two views of a cup device which is a third embodiment of the invention in different respective configurations; and

[0024] Fig. 4, which is composed of Figs. 4(a), 4(b), 4(c) and 4(d), is views of a cup device which is a fourth embodiment of the invention in different configurations.

Detailed Description

[0025] Referring firstly to Fig. 1, the cup device which is a first embodiment of the invention is illustrated. The cup device includes a hollow food storage element 1 and a cup member 3. Fig. 1(a) shows the cup device in a configuration in which the food storage element 1 and cup member 3 are separated, while Fig. 1(b) shows them in a joined configuration. The cup member 3 includes a base 5, a generally cylindrical side wall 7 and a cap element 9. A closed drink chamber for holding drinks is defined between the base 5, side wall 7 and the cap element 9. The cap element 9 in-

cludes a training rim 10 communicating with the drink chamber. The side wall 7 includes a cavity 11 for receiving the food storage element 1.

[0026] In the configuration shown in Fig. 1(a) food may be inserted into and removed from the food storage element 11. Actually, the food compartment in the food storage element 1 has an opening 2 (upwardly directed in Fig. 1(a)) through which food may be introduced or removed.

[0027] The operation for attachment of the food storage element 1 to the cup member 3 is as follows. The food storage element is oriented such that an axis 13 through it (on its line of vertical symmetry) is inclined relative to the axis 15 of the cup member 3, and a lower portion 17 of the food storage element 1 is inserted into a lower portion of the cavity 11. In this configuration the top portion 19 of the food storage element 1 is hardly inserted at all into the cavity 11. Then the food storage element 1 is rotated such that the axis 13 of the food storage element 1 is brought parallel to the axis 15 of the cup member 3. In this operation, the movement of the food storage element 1 is guided by a pivoting interaction between a pivot line where the lower part 17 of the food storage element 1 touches the cup member 3. Gradually, the top portion 19

of the food storage element 1 is inserted into the cavity 11, to give the configuration shown in Fig. 1(b).

[0028] The cavity 11 and food storage element 1 are shaped to as to provide a detent which releasably maintains the food storage element 1 is in this position. For example, the action of inserting the food storage element 1 into the cavity may cause a resilient portion of one of the cup member 3 and food storage element 1 to be deformed, and when the food storage element 1 reaches the fully inserted position the resilient portion may assume a configuration in which it retains the food storage element 1 in the inserted position until sufficient force is applied to the food storage element 1 to deform the resilient portion sufficiently to release the food storage element 1. When the detent releases the food storage element 1, the food storage element 1 may again rotate so that its top portion 19 partially leaves the cavity 11. The cavity 11 and food storage element 1 may be shaped such that the food storage element 1 can rest in this position, in which the lower portion 17 of the food storage element 1 is attached to the cup member 3, but the top portion 19 of the food storage element 1 projects out of the cavity 11. Optionally, a second detent may be provided to releasably maintain it in

this position. Releasing this second detent allows the food storage element 1 to be completely removed from the cup member 3, to resume the configuration of Fig. 1(a).

[0029] Turning to Fig. 2, a second embodiment of the invention is shown. Elements of the second embodiment corresponding to the first embodiment are shown by reference numerals 100 higher. In contrast to the first embodiment, the food storage element 101 of the second embodiment is permanently connected to the cup member 103. The connection between the food storage element 101 and cup member 103 is such that the two are mutually pivotable. The pivoting is between a first configuration, shown in Fig. 2(a), in which the axis 113 of the food storage element 101 is inclined forward compared to the axis 115 of the cup member 105 so that the top 119 of the food storage element 101 projects out of the cavity 111 (but the food storage element 101 is unable to fully exit the cavity 111), and the configuration shown in Fig. 2(b) in which the axes 113, 115 are substantially parallel and the food storage element 101 is in the inserted position.

[0030] Turning to Fig. 3, a third embodiment of the invention is shown. Elements of the third embodiment corresponding to the first embodiment are shown by reference numerals

200 higher. The food storage element 201 of this embodiment is fully separable from the cup member 203, as shown in the configuration of Fig. 3(a). The food storage element includes an upper opening 202 through which food can be inserted into it or removed from it. In this embodiment the cup member 203 and food storage element 210 are equal halves of a cylinder located over the base 205. The cylinder is formed by inserting the food storage element 210 into the semi-circular food storage region 211 over the base 205, to give the configuration shown in Fig. 3(b).

[0031] A detent (not shown) is provided for releasably holding the food storage element 201 in this position. This may be a snap-fit connection.

[0032] When the food storage element 201 is inserted into the food storage region 211 the opening 202 may be blocked by a downwardly facing surface of the cap 209 at the top of the gap 211, so that the food compartment is closed. Alternatively, it could have its own lid.

[0033] Note that the rear wall 231 of the food storage element 210 could be omitted, so that the food storage element is rather like a "door"over the food storage region. The door may swing open, slide open, and/or be pulled off com-

pletely for access to the food storage region.

[0034] Turning to Fig. 4, a fourth embodiment of the invention is shown. Elements corresponding to those of the embodiment of Fig. 1 are shown by reference numerals 300 higher. Fig. 4(a) is an exploded view of the food storage element 301 and the cup member 303. The food storage element 301 and the cup member 303 are each generally cylindrical, but the cup member 303 includes on its side a cavity 311 for receiving the food storage element 301. The food storage element 301 is hollow and contains a front opening 302 and a tab 344.

[0035] Fig. 4(b) is a cross-sectional view of the cup device in a horizontal plane (not including the aperture 302 or the tab 344) with the food storage element 301 inserted into the cavity 311. The opening of the cavity 311 (i.e. the distance between the lips 340) is slightly narrower than the diameter d of the cavity, which is substantially equal to the diameter of the food storage element 301, so that when the food storage element 301 is inserted into the cavity 311 (e.g. by a snap-fit installation) it is retained there. Thus, the lips 340 act as a detent (optionally, it may or may not be possible, easily, for an adult user to remove the food storage element 301 from the cavity 311, and

replace it). The drink chamber is shown in Fig. 4(b) as 341. Note that in variations of this embodiment, the lips 340 may be as far apart as d, and some alternative detent means is provided to hold the food storage element 301 in the cavity 311 (e.g. releasably).

[0036] Figs. 4(c) and 4(d) show the cup device in a front view with the food storage element 301 inserted into the cavity 311, and in two different respective rotational positions (i.e. around the axis 313 of the food storage element 301). The food storage element 301 can be moved between these positions using the tab 344. In the configuration shown in Fig. 4(c), the aperture 302 is open. In the configuration shown in Fig. 4(d), the aperture 302 is rotated behind the side wall 307 so that the food compartment is closed.

[0037] In each of the four embodiments, the outer surfaces of the walls 7, 107, 207, 307 of the cup member 3, 103, 203, 303 away from the cavity 11, 111, 211, 311 lie substantially on a notional cylinder. When the food storage element 1, 101, 201 is in the inserted position shown in Figs. 1(b), 2(b), 3(b), and in all rotational positions shown in Fig. 4, it is substantially all within this cylinder. In other words, substantially none of the food storage element 1,

101, 201, 301 (e.g. no more than 10% by volume, or better still no more than 5% by volume) projects radially outwardly from the axes 15, 115, 215, 315 by more than the maximum radius of the wall 7, 107, 207, 307 of the cup member 3, 103, 203, 303. The outer surface of the food storage element 1, 101, 201, 301 may, in the inserted position, lie substantially on the notional cylinder. Thus, in the configurations of Fig. 1(b), 2(b), 3(b), 4(a), 4(c) and 4(d), the cup device has a substantially cylindrical profile around the whole of the axis 15, 115, 215, 315 along the portion of the axis 15, 115, 215, 315 which is between the cap 9, 109, 209, 309 and the base 5, 105, 205, 305.

[0038] Although only four embodiments of the invention have been illustrated, many variations are possible within the scope of the invention as will be clear to a skilled reader. For example, the training rims 10, 110, 210, 310 of any of the embodiments may take various forms or indeed be replaced by any other form of drinking aperture conventional in cup devices, such as a spout.

[0039] In any embodiment of the invention, the drinking aperture may be closable, and/or permit flow at a selected one of a plurality of possible rates. For example, the drinking aperture may have a mouthpiece element which can be

moved between a first position in which the user can use the mouthpiece element to drink liquid from the drink chamber, and a second position in which the mouthpiece does not pass the liquid. In the second position a drinking hole in the mouthpiece may be covered, reducing the risk that in use it may become contaminated. Optionally, the mouthpiece may be pivotable between these positions.

[0040] In the case of the training rims 10, 110, 210, 310, the training rim may include a number of holes (e.g. three) and the user (e.g. a parent of the child) may select the number of these holes which is open. This selection may, for example, depend upon a rotational position of the cap element 9, 109, 209, 309.

[0041] The cap element 9, 109, 209, 309 may be connected releasably to the rest of the respective cup member 3, 103, 203, 303 so that the drink chamber can be accessed, for example for filling or cleaning.

[0042] Optionally, the cup device of any of the embodiments above may include a "freezer stick"element, that is an element having a high specific heat which is separable from the rest of the cup device and can be inserted into a freezer, and then, once reduced to a low temperature, reattached to the cup.

[0043] The mouthpiece may be in communication with a tube extending into the drink chamber, so that a user can suck liquid from the drink chamber through the tube and out of the cup device through the mouthpiece. Due to the tube, drink can be sucked from the cup device only when the cup device is substantially upright.

[0044] The centre of mass of the assembled drinking cup device is preferably disposed oppositely, relative to a central vertical axis 15, 115, 215, 315 of the cup, from the opening of the tube into the drink chamber. Thus, if the cup device overbalances it will tend to fall in the direction such that the opening of the tube is raised. This reduces the risk of liquid within the drink chamber exiting the cup device via the tube, or at least reduces the amount of liquid which will exit the cup. Furthermore, if the centre of mass of the cup device is opposite the food storage element this means that there is reduced risk of the food storage element falling out.

[0045] The provision of the centre of mass of the cup in a desired location is just one way of limiting the risk of undesirable egress of fluid from the cup. Alternatively, or additionally, a valve may be provided, e.g. in the drinking aperture.

[0046] Although in the embodiments of the invention described

above the food storage element is almost entirely in the food storage region (in the case of the first three embodiments, when the food storage element is inserted into that region), this is not required. Rather only a part of the food storage element may enter the food storage region, while a substantial portion of it extends out. This is not preferred presently because it leads to increased risk of the food storage element being knocked out of the food storage region.

[0047] Also, although the outer profile of all the embodiments is substantially circular about the vertical axes of the cup member (which is advantageous to provide the rolling motion described above), this too is not essential to the invention. For example, cup may include one or more handles.